Personal Data:

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Interests and Objective:

My primary research has been focused on the ablative effect of the solar wind on planetary atmospheres, especially that of Earth, and the long-term implications for atmospheric and biospheric evolution. The circulation and participation of ionospheric plasma in magnetospheric processes is a necessary part of this. In recent years I've taken a greater interest in promoting the interdisciplinary research that is required to better understand our physical world, its evolution and future development as our home in the universe.

Formal Education:

	degree	date	institution
Astrogeophysics	Ph.D.	1978	Univ. of Colorado
Teaching Education	M.A.T.	1971	Univ. of N.H.
Physics, minors: E.E., Mathematics	B.S.	1970	Univ. of N.H.

Employment Experience:

1997-present	R&D manager	NASA Goddard Space Flight Center, Greenbelt, MD
2000-2003	Adviser, graduate faculty	Vanderbilt University, Nashville, TN
1986-1998	Instructor, graduate faculty	Dept. of Physics, Univ. of Ala. in Huntsville, AL
1984-1997	R&D manager	NASA/Marshall Space Flight Center, Huntsville, AL
1983-1984	Research scientist	NASA/Marshall Space Flight Center, Huntsville, AL
1981-1983	Research scientist	Space Science Center, University of N.H., Durham, NH
1981-1983	Instructor	Dept. of Physics, University of N.H., Durham, NH
1979-1981	Postdoctoral scientist	Space Science Center, University of N.H., Durham, NH

Project Roles:

2003-2004	Project Scientist: Polar Mission
1999-present	Project Study Scientist: NASA Magnetospheric Constellation Mission.
1997-present	Mission Scientist: IMAGE Mission, a NASA Mid-Explorer mission
1996-1999	Member: Solar Probe Science Definition Team, 1996-1999.
1991-1994	Member: NASA Science Study Panel, Inner Magnetosphere Imager mission.
1987-1988	Mission Scientist: SpaceLab/Space Plasma Laboratory

Research Roles:

2005-present	Principal Investigator: Impact of the extended ionosphere on magnetospheric processes, Geospace Sciences Program.
2005-present	Lead Co-investigator: SMART Fast Plasma Instrument for the Magnetospheric Multi-Scale Mission.
2005-present	Co-investigator: Interstellar Boundary EXplorer, IBEX-Lo sensor conversion surface
1997-present	Lead Coinvestigator: Low Energy Neutral Atom Imager, IMAGE mission (NASA).
1989-present	Principal Investigator: Thermal Ion Dynamics Experiment on the International Solar Terrestrial Physics program POLAR spacecraft (NASA).
1993-2003	Principal Investigator: Energization of Terrestrial Plasma: 3D kinetic investigation plasma transport and energization within the magnetosphere (NASA).
1991-1995	Co-Investigator: Sounding of the Cleft Ion Fountain Energization Region (SCIFER): ion mass spectrometry for a dayside cusp sounding rocket payload (NASA).

1990-1993	Principal Investigator: Magnetospheric Role of Ionospheric Plasma: modeling and data comparisons (NASA).
1986-1992	Principal Investigator: Cometary Retarding Ion Mass Spectrometer for the Comet Rendezvous Asteroid Flyby Mission (NASA).
1988-1993	Team Leader: Dynamics Explorer/Retarding Ion Mass Spectrometer Science Team. Transport and distribution of ionospheric plasma in Earth's magnetosphere (NASA).
1983-1991	Principal Investigator: Ionospheric Mass Spectrometry: NASA Research and Technology Objective Plan supporting development of innovative instrumentation and test flight on sounding rocket payloads such as the TOPAZ series (NASA).
1982-1983	Principal Investigator: Topside Probe of the Auroral Zone (TOPAZ), a high altitude rocket program to investigate the response of the topside ionosphere to auroral processes (NASA).
1980-1982	Principal Investigator: Analysis of University of NH ATS-6 plasma data: Multiple spacecraft studies. Correlation of data sets from several spacecraft in the time frame from 1977-82, e.g. SCATHA, GEOS, GOES (NASA).
1981-1984	Co-Investigator: Argon Release Controlled Studies (ARCS): sounding rocket program to study wave-particle energy coupling by means of ion beam perturbations (NASA).
1979-1983	Co-Investigator: Geosynchronous Orbit Correlative Studies: Correlative analysis of data from ATS-6 and other spacecraft with ground-based data sets (NSF).

Service Roles:

2004-2005	Co-Chair, NASA Sun-Solar System Connections Roadmap Team.
2000-2003	Co-Chair, NSF GEM Working Group on Solar-Ionospheric Plasma Exchange.
2000-2002	Member, NASA Living With a Star Program GSFC Steering Committee.
1999-2000	Member, NASA Sun-Earth Connection Roadmap Committee.
1996-1998	Co-Chair: Working group on high latitude plasma source processes, Int'l Space Science Institute project on sources and losses of magnetospheric plasma.
1996-1998	Secretary: Magnetospheric Physics, Space Physics and Aeronomy Section of the American Geophysical Union.
1996	Co-convener: Huntsville '96 Workshop: "Encounter between global observations and models in the ISTP era."
1995-1997	Member: Space Physics Subcommittee of the NASA Space Science Advisory Committee.
1993-1994	Associate Editor: Journal of Geophysical Research, Space Physics.
1992-1998	Consultant: SciTech Journal, of the Macintosh Scientific and Technical Users Group, in the area of scientific data acquisition, analysis and visualization.
1993-1995	Reporter Reviewer: International Association of Geomagnetism and Aeronomy, 7th and 8th scientific assemblies.
1992	Co-Convener: Third Huntsville Workshop on Magnetospheric Plasma Models: "Sources, Transport, Energization, and Loss of Magnetospheric Plasmas".
March 1992	Reporter: NASA Select "Today In Space" reporter on the Space Plasma Physics investigations aboard the ATLAS-1 mission: SEPAC, AEPI, ENAP.
1987-1990	Invited Reviewer: U.S. National Report to the Int'l Union of Geodesy and Geophysics.
1990	Member: NASA/OSSA/Space Physics Division Strategy Implementation Study, Panel on Magnetospheric Physics.
1990-92	Member: AGU Awards Committee.
1986-89	Member: NRC/SSB Comm. on Solar and Space Physics.
Sept. 1987	Co-Convener: Workshop on Experiments with Magnets in Space.
1987-90	Member: NASA Magnetosphere-Ionosphere Management and Operations Working Group.
1988	Co-Editor: "Modeling Magnetospheric Plasmas", Geophysical Monograph No. 44, American Geophysical Union, Washington, DC.

Management Roles:

2004-2005:	Strategic Planning: Served simultaneously as co-chair for the NASA Sun-Solar System Connections Roadmap (2004-2005), co-chair for the NASA APIO Roadmap Committee, and as a member of the GSFC Earth-Sun Exploration Division strategic planning committee. Also served as a member of the GSFC Cost Control Tiger Team, with the goal of more transparent access to funds accounting information.
2004-2005	Laboratory Chief: Served as acting lab chief for 5- and 2- month intervals, managing an administrative office with 4-5 associated branches. Completed hiring of a research scientist and assistant chief, initiated web site redesign for new organizational structure.
1985-2005	Branch Head: Manage secretary, up to 15 Ph.D. research scientists, computer scientists, computer system manager, and support team of up to 5 engineers, 5 technicians, and a machinist. Facilities managed included a departmental computer, a network of several Unix workstations, 18 Mac OS and 6 DOS desktop computers, a mission operations facility, class 10000 clean room, technician work areas including a small machine shop, and two ultra-clean high vacuum facilities including particle beam sources and extensive data acquisition and control facilities.
1985-2005	Mentoring: Serve as research adviser to numerous senior and postdoctoral NRC resident research associates, younger scientists, graduate students and undergraduate aides.
1983-2005	Contracting: Purchase R&D services through contract, grant, and cooperative agreement instruments, as appropriate. Annual funding levels range up to 3M$.

Honors and Awards:

2005	Group Achievement Award: New Business Award for leadership of MMS/FPI proposal
2003	Outstanding Management Award (nominated by branch staff members)
2001	Group Achievement Award for IMAGE/LENA Imager team leadership
2001	Outstanding Teamwork Award for IMAGE Mission Management
2003	Sustained Superior Performance, GSFC
1998	Group Achievement Award for Polar TIDE-PSI Team leadership
1998	Best Non-Compliant Scheduling Award, AGU Program Chairman
1994	Sustained Superior Performance, MSFC (multiple awards)
1993	Research and Technology Excellence, MSFC
1992	Group Achievement Award for Public Communication of Spacelab/ATLAS1 Mission results
1970	Phi Beta Kappa (Scholarship Honor Society)

Publication Record:

Peer reviewed	Over 200 open literature publications Over 45 as first author 8 review papers, 4 invited
Other	2 encyclopedia articles 1 book chapter 6 technical memoranda 1 book review